NORTH RAILROAD AVENUE PLUME
(RIO ARRIBA COUNTY) NEW MEXICO
(Within the exterior boundaries of the Santa Clara Indian Reservation)

EPA ID# NMD986670156
Site ID: 0604299

EPA REGION 6
CONGRESSIONAL DISTRICT 3

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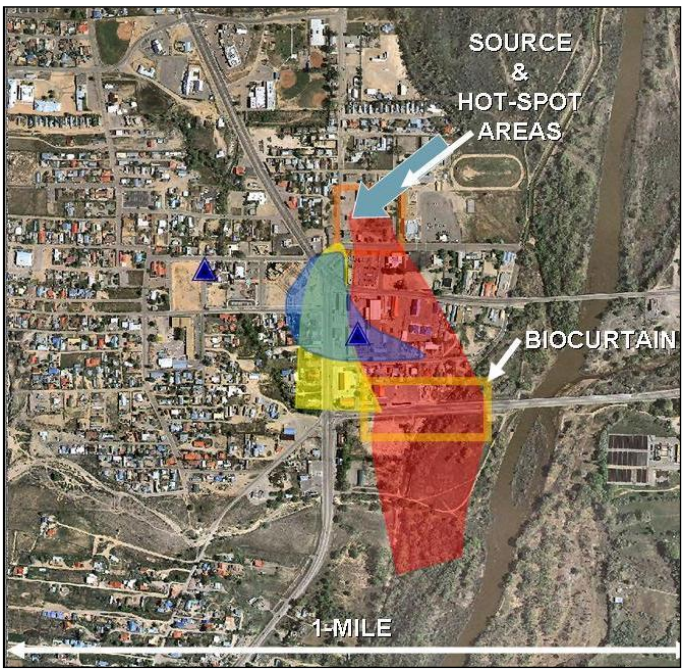
Background

The North Railroad Avenue Plume is located in Espanola, Rio Arriba County, New Mexico, within the exterior boundary of the Santa Clara Indian Reservation. The Santa Clara Pueblo is located one mile south of the site. The site consists of a contaminated ground water plume extending approximately 58 acres in elliptical shape ¾ miles south of 113 North Railroad Avenue. The contamination originated at the Norge Town Laundromat and Dry Cleaning operation.



The contaminants of concern detected in the ground water are tetrachloroethylene (PCE), trichloroethylene, cis-1, 2-dichloroethylene, and trans-1, 2-dichloroethylene. PCE is the contaminant most widespread and found in the highest concentrations. The population of Espanola is 8,389 people. The Santa Clara Pueblo has a population of 2,400 people.

The Record of Decision was signed on September 27, 2001. The major components of the Selected Remedy include solvent flushing for the DNAPL component of the ground water contamination and in-situ biological treatment for the dissolved contamination. EPA signed an Explanation of Significant Differences to the Record of Decision on March 7, 2008, and received concurrence and letters of support from the State of New Mexico, the Santa Clara Pueblo and the City of Espanola.

The Remedy includes the following activities:

- Enhanced In-Situ Bioremediation in the Source Zone (DNAPL), and at high PCE concentration areas (or Hot Spots);
- Enhanced In-Situ Bioremediation of the Dissolved-Phase Plume;
- Semi-Annual Ground Water Quality Monitoring (to assess performance of the remedial actions)

Current Status

- NMED and their consultants CDM Smith submitted an updated Statement and Work along with a budget to EPA for review on May 17, 2012 to continue Long Term Remedial Action at the site, which includes project oversight, technical management fees, sampling and analysis and long term planning among other things.
- NMED collected semi-annual groundwater data in March 2012 under their revised sampling plan. Data results are under review and a meeting between EPA and NMED and the new consultants is pending regarding next steps in remedy operations.
- The groundwater data collected the Fall of 2011 is under review for continued Remedial Action activities for 2012 work assignments. NMED is working with their new contractor and is updating their site management plans to determine if further optimization can be achieved. EPA will participate in these plans once they are drafted for further evaluation.
- NMED submitted to EPA on November 22, 2011 their Ground Water Sampling Report for the January/February 2011 sampling event. The August 2011 Report is under development at this time.
- Bid proposals were reviewed and contract bid presentations were held on May 25-26, 2011 in Santa Fe and Albuquerque in preparation of final selection for continued remedial action at the Site. As the 90% funding source for the Site (10 year LTRA) EPA was in attendance and reviewed the proposals with NMED.
- LTRA contract is up for expirations and hence, NMED advertised on March 24 their request for proposals on the LTRA contract. The bids are due May 5th. Selection for finalist is scheduled for June 1st.
- NMED is currently operating two of the three ground water treatment systems installed at the site. The Source Area/Hotspot (SA/HS) system was able to successfully halt remediation in February 2010 because remediation goals have been met and contaminant concentrations were reduced to below the site remedial goals for all COCs except for vinyl chloride throughout most of the treatment area.
- Only a small, localized area within the Source Area continued to show higher COC concentrations. Ground water samples collected from the Source Area wells in September 2010 continued to show decline of COCs with vinyl chloride being reduced from 11,000 ug/L in November 2009, to 2000 ug/L in September 2010.
- The Source Area/Hot Spot continues to be monitored on a monthly basis for methane gas buildup which was generated as a result of the insitu bioremediation treatment system. NMED will also assess the methane soil gas issue to determine if additional actions, such as active methane removal through a Soil Vapor Extraction (SVE) system, is required. So far, vapor intrusion inside adjacent buildings have not been a threat to human health and the environment. The methane gas demonstrates so far to be a localized issue and requires worker protection safety measures to be strictly adhered to, in order to prevent health issues to workers managing the well vaults.
- The biocurtain treatment system and passive Deep Zone injection wells remain in operation. At both systems, a major rehabilitation of the treatment systems was performed in September 2010 in anticipation of the next round of amendment injections. All of the biocurtain injection and extraction wells and lines were cleaned during this event. At the Deep Zone, seven of the injection wells were rehabilitated. In October 2010, 400 gallons of emulsified vegetable oil amendment was injected at the biocurtain and 274 gallons of amendment and 27,000 gallons of water were added at 6 of the Deep Zone injection wells.
- A sixth amendment injection was performed during the week of October 4th at the BioCurtain location. A total of 400 gallons of emulsified vegetable oil amendment and 200 gallons of nutrient mix were used during this event. The biocurtain has remained in operation throughout October. The system recently required some routine maintenance to make it operational at full capacity.
- Prior to the system rehab, five samples were collected from the extraction wells. The results are consistent with the June 2010 ground water sampling although PCE was detected in a couple extraction wells but not in the monitoring wells.
- A 4th amendment dose was injected to seven of the Deep Zone wells during October. The amendment dose and make water were doubled (274 gals of amendment and 27,000 water) during this event in order to create a greater radius of influence around the injection wells.

- The Source Area/Hotspot system has not been operated since February 2010 due to the reduced levels of contamination at this location.

EPA and NMED in coordination with Santa Clara Pueblo and the City of Espanola held a Construction Completion Ceremony at the site on October 14, 2008 to commemorate the completion of the remedy construction and full implementation of the remedy. A Preliminary Close-Out Report was signed by the Director (Acting) of Superfund for Region 6 on June 30, 2008 documenting construction completion of the project remedy to Congress.

EPA signed an Explanation of Significant Differences to the Record of Decision on March 7, 2008, and received concurrence and letters of support from the State of New Mexico, the Santa Clara Pueblo and the City of Espanola.

Based on the highly successful results received during the Field Test Plan, emulsified vegetable oil will be used to remediate the PCE plume and DNAPL contaminant. The Explanation of Significant Differences report identifies emulsified vegetable oil, combined with infused hydrogen gas at the source of the plume makes an excellent substitute for the originally planned SEAR treatment. Based on new information obtained during remedy implementation EPA and NMED determined SEAR treatment was not the best option for remediation the DNAPL and source area of the plume. For more information, please see the ESD report or Fact Sheets mailed to the community at large.

NMED, the state lead on the Remedial Action at the site is currently implementing Enhanced In-Situ Bioremediation treatment. The well installation phase of the remedy was completed November 2005. The two treatment buildings have been erected for the source area and bio-curtain along U.S. Highway 84/285, and in the deep zone near the Plaza de Espanola area.

Benefits

- The investigation of the ground water contamination identified the source of contamination, the extent of the ground water contamination, and its potential threat to the public drinking water supply.
- Remediation of the contaminated media will protect the area drinking water supply and the Rio Grande from future chlorinated solvent contamination.
- The site is currently unrestricted from surface landuse activities or redevelopment. Coordination and consultation with NMED should continue to occur however, since NMED is currently undergoing preliminary remedial implementation.

Population Protected and the Volume of Contaminated Media

Population in July 2008: 9,691. Population change since 2000: +0.0%

An estimated 280 million gallons (OR 23,352 POUNDS) of ground water has been contaminated, and based on plume dimensions and average concentrations, an estimated 275 pounds of PCE exists in the dissolved phase. In addition, residual PCE, in the form of a dense non-aqueous phase liquid (DNAPL) in the source area is the principal waste threat at the Site. An estimated 25 gallons (or 300 pounds) of DNAPL acts as a continual source of contamination by slowly dissolving into the ground water as it flows, creating the shallow and deep dissolved phase plume.

PCE has been reduced by greater than 95% throughout the treatment areas. Treatment areas defined as the ~ 200 x 600 foot area in the source area/hotspot and the 600 x 250 ft area at the biocurtain (not throughout the plume). PCE concentrations have been reduced from >29,000 ug/l to <1000 ug/l in the source area and from between 1500 to 3000 ug/l to below 5ug/l through out the hotspot area. Currently,

vinyl chloride is the primary contaminant of concern within the treatment areas.

National Priorities Listing (NPL) History

NPL Inclusion Proposal Date:	July 28, 1998
NPL Inclusion Final Date:	January 19, 1999
NPL Deletion Proposal Date:	n/a
NPL Final Deletion Date:	n/a

Site Description

Location: The site is located in Espanola, Rio Arriba County, New Mexico, within the exterior boundary of the Santa Clara Indian Reservation. The Santa Clara Pueblo is located one mile south of the site. The site is located within the central business district of the town of Espanola. This central district includes service businesses, light industrial activities, as well as residential properties, and subsistence farming land.

Population: The 1990 U.S. Census estimated the population of Espanola to be 8,389 people. The Hispanic and Native American community comprise approximately 50% of the population. The Santa Clara Pueblo has a population of 2,400 people.

Setting: The site consists of a contaminated ground water plume extending approximately 58 acres in elliptical shape ¾ miles south of 113 North Railroad Avenue. The release of PCE contamination originated at the Norge Town Laundromat and Dry Cleaning operation.

Photos: **Site Pictures 2008**

Health Considerations

- There is a potential for elevated health risk levels associated with two types of chlorinated hydrocarbon compounds detected in the ground water including, tetrachloroethylene, trichloroethylene, cis-1, 2-dichloroethylene, and trans-1, 2-dichloroethylene. Pathways of concern are through ingestion, inhalation, or dermal contact with contaminated ground water.
- Tetrachloroethylene is the leading concern at this site because it is most widespread and found in the highest concentrations in ground water.

Record of Decision

Record of Decision Signed: September 27, 2001

The major components of the Selected Remedy include solvent flushing for the DNAPL component of the ground water contamination and in-situ biological treatment for the dissolved contamination. Soil vapor extraction from soil located at the source area is part of the remedy. A restrictive covenant is in place and prohibits the drilling of ground water wells within the affected ground water.

Site Contacts

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NMED Project Manager:	Steve Jetter	505-827-0072
EPA Regional Public Liaison:	Donn R. Walters	214-665-6483 or 1-800-533-3508
Site Repository:	Espanola Public Library	